REMARKS

Applicants' representatives extend their gratitude to Examiner MacArthur for her time and preparation in conducting the telephonic interview on November 13, 2009.

Prior to this Response, Claims 1-11 and 38-43 were pending in the present application, and Claims 38-43 have been withdrawn from consideration. Claims 1-11 and 38-43 remain pending in the present application, and Claims 1-11 are at issue in the present Response.

In the Office Action dated September 15, 2009, Claims 1-3, 5, and 8-11 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,300,175 issued to Gardner, et al. (hereinafter referred to as "*Gardner*"); Claims 1-3, 5, and 8-11 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Publication No. 2004/0094095 to Huang, et al. (hereinafter referred to as "*Huang*"); Claims 6 and 7 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Gardner* or *Huang* in view of U.S. Patent Publication No. 2003/0075109 to Arai, et al. (hereinafter referred to as "*Arai*"); and Claim 4 was rejected under 35 U.S.C. §103(a) as being unpatentable over *Gardner* or *Huang*.

35 U.S.C. §102(b) Rejection of Claims 1-3, 5, and 8-11 over *Gardner*

Claims 1-3, 5, and 8-11 were rejected under 35 U.S.C. §102(b) as being anticipated by *Gardner*. As previously argued by Applicants in response to the Office Action dated October 7, 2008, Applicants assert that *Gardner* fails to teach a reaction chamber, as recited in independent Claim 1 of the present application. Applicants note that the Examiner did not address this argument in the present Office Action, and Applicants assert that this distinction is significant and patentably differentiates the present invention over *Gardner*. In particular, independent Claim 1 of the present application recites "[a]n apparatus for processing a substrate comprising a frontside and a backside used in the fabrication of an integrated device, the apparatus comprising a reaction chamber...wherein: the first load platform and the second load platform are disposed within the reaction chamber" (emphasis added). As disclosed in paragraph [0024] of the present application as originally filed, a suitable reaction chamber is disclosed in U.S. Patent No. 6,093,252 and disclosed herein. The reaction chamber disclosed in the cited patent and incorporated in the present application is a chamber in which process gases are introduced into the volume of the reaction chamber, wherein a chemical reaction occurs between the process

gases and a substrate disposed within the reaction chamber to deposit a layer of material on the substrate. Further, Claim 1 also recites "thereby permitting a process gas to contact both the frontside and backside of the substrate loaded on the first load platform" (emphasis added). This claim limitation further supports that process gases are introduceable into the reaction chamber for use in the fabrication of an integrated device. In addition, Applicants assert that the term "reaction chamber" is a term commonly understood and used within the art to mean a chamber into which reactant gases are introduced so as to react with a substrate positioned within the chamber, wherein the reactant gases react with the substrate to deposit a layer of material on the substrate. *Gardner*, however, is directed to a bonding apparatus (10, 60) for bonding one wafer to another wafer within a pressure vessel (48).

The pressure vessel (48) disclosed in *Gardner* is substantially different than the reaction chamber recited in Claim 1 of the present application. The pressure vessel (48) is attached to a chuck 12 to form a sealed pressure chamber (47) therewithin. However, *Gardner* does not disclose that reactant or process gases are introduced or can be introduced into the pressure vessel (48). Applicants assert that the pressure vessel taught in *Gardner* is incapable of processing or fabricating integrated devices using process gases. Thus, the pressure vessel of *Gardner* is not a reaction chamber and is substantially different from a reaction chamber as contemplated in Claim 1 of the present application. Accordingly, Applicants assert that *Gardner* fails to teach at least one element of Claim 1 of the present application.

Further, Claim 1 of the present application recites "each of the first and second load platforms is dimensioned and configured to directly support **the** substrate" (emphasis added). In paragraph [0008] of the present application as originally filed, the specification explains that "the substrate is loaded onto a first load platform in a reaction or process chamber...[t]hen the wafer is transferred to a second load platform, preferably in the same reaction chamber for further processing." This portion of the specification indicates that the same substrate is transferred from the first load platform to the second load platform. The limitation of Claim 1, as provided above, indicates that each of the first and second platforms is dimensioned and configured to directly support the same substrate. To the contrary, neither of the "load platforms" (submount support (30) or wafer mount (21)) of *Gardner* is configured or dimensioned to support the submount or wafer that is supported by the other. For example, *Gardner* fails to disclose that the

submount support (30) is sized or dimensioned to support a wafer (40) that is supported on the wafer mount (21), and *Gardner* fails to disclose that the wafer mount (21) is sized or dimensioned to support a submount (44) that is supported on the submount support (30). Additionally, *Gardner* also fails to disclose that either the submount (44) or the wafer (40) is transferred to the other "load platform" in the same manner as the substrate is supportable by both the first and second load platforms in Claim 1 of the present application. Furthermore, the submount support (30) of *Gardner* is incapable of being dimensioned so as to support a wafer (40), because in order for the system of *Gardner* to operate as intended the submount support (30) must be dimensioned significantly larger than the size of the wafer (40) so that the entire surface of the wafer (40) can contact the submount (44) that bows downwardly when the submount and wafer are bonded. Accordingly, Applicants assert that *Gardner* also fails to teach "each of the first and second load platforms is dimensioned and configured to directly support the substrate," as recited in Claim 1 of the present application.

Claims 2-3, 5, and 8-11 are dependent claims that depend from independent Claim 1 of the present application and include all of the limitations thereof. The allowability of Claims 2-3, 5, and 8-11 flows from the allowability of independent Claim 1 from which they depend. Moreover, Claims 2-3, 5, and 8-11 recite additional nonobvious combinations of features of advantage and utility. Therefore, Applicants respectfully request the rejection of Claims 1-3, 5, and 8-11 under 35 U.S.C. §102(b) as being anticipated by *Gardner* to be withdrawn for at least the reasons provided above.

35 U.S.C. §102(e) Rejection of Claims 1-3, 5, and 8-11 over *Huang*

Claims 1-3, 5, and 8-11 were rejected under 35 U.S.C. §102(e) as being anticipated by *Huang*. As previously argued by Applicants in response to the Office Action dated October 7, 2008, Applicants assert that *Huang* fails to teach a first and a second load platform. Independent Claim 1 recites "each of the first and second load platforms is dimensioned and configured to directly support the substrate." *Huang* fails to teach a first and second load platform for directly supporting the substrate. Instead, *Huang* teaches only a single platform or support configured to support a substrate. Applicants recognize that the substrate holder (48) disclosed in *Huang* is equivalent to a first load platform. Contrary to the Examiner's assertion, the substrate heater (66)

taught in *Huang* is not configured to support or even contact the substrate. In particular, *Huang* states that "in application of the substrate holder assembly 40, the substrate 64 is initially supported on the annular substrate support shoulder 55 of the substrate holder 48, above the substrate heater 66" (emphasis added) (*Huang*, paragraph 30). *Huang* clearly teaches in the specification and illustrates in the drawings that the substrate (64) is supported on the substrate support shoulder (55) in a spaced-apart relationship relative to the heater (66) such that the substrate is never directly supported on the heater. There is no other teaching in *Huang* to indicate that at any time is there contact between the substrate (64) and the substrate heater (66) wherein the substrate heater (66) would in any way be supporting the substrate (64). Accordingly, Applicants assert that *Huang* fails to teach first and second load platforms for directly supporting the substrate. Thus, Applicants assert that *Huang* fails to teach at least one element of independent Claim 1 of the present application.

Claims 2-3, 5, and 8-11 are dependent claims that depend from independent Claim 1 of the present application and include all of the limitations thereof. The allowability of Claims 2-22, 41, and 43 flows from the allowability of independent Claim 1 from which they depend. Moreover, Claims 2-3, 5, and 8-11 recite additional nonobvious combinations of features of advantage and utility. Therefore, Applicants respectfully request the rejection of Claims 1-3, 5, and 8-11 under 35 U.S.C. §102(e) as being anticipated by *Huang* to be withdrawn for the reasons provided above.

35 U.S.C. §103(a) Rejection of Claims 6-7 over *Gardner* or *Huang* in view of *Arai*

Claims 6 and 7 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Gardner* or *Huang* in view of *Arai*. Applicants assert that *Arai* fails to cure the deficiencies of both *Gardner* and *Huang* in view of the arguments presented above.

Combination of *Gardner* and *Arai*

As explained above, *Gardner* fails to teach at least: (1) a "reaction chamber" and (2) "each of the first and second load platforms is dimensioned and configured to directly support the substrate," as recited in Claim 1 of the present application.

Applicants recognize that *Arai* teaches a reaction chamber, but Applicants assert that it would not have been obvious to one skilled in the art to combine the teachings of *Arai* with the teachings of *Gardner* to satisfy the reaction chamber limitation of Claim 1. *Gardner* is directed to bonding two wafers together without any further processing of an integrated circuit, whereas *Arai* is configured to process a substrate within a reaction chamber to produce vapor phase growth thereon. The reaction chamber (11) of *Arai* is configured to allow for safe processing of a substrate utilizing reactant gases flowing therethrough to produce chemical reactions within the reaction chamber. The pressure vessel (48) of *Gardner* is configured to withstand the reduced pressures generated within the bonding apparatus to ensure proper bonding between wafers, but the pressure vessel (48) does not take into consideration the material choices or the particles produced by using components connected by way of screws. The processes performed within the pressure vessel of *Gardner* and the reaction chamber of *Arai* are substantially different such that it would not have been obvious to one skilled in the art to modify the teachings of *Gardner* by replacing the pressure vessel (48) with the reaction chamber (11) taught in *Arai* to teach the reaction chamber limitation of Claim 1 of the present application. One of ordinary skill in the art would understand that the substrate support apparatus taught in *Gardner* cannot be directly ported into a reaction chamber like the one taught in *Arai* without additional engineering and other considerations such as particle generation, reaction of the materials with potential process gases used, and the like. Accordingly, Applicants respectfully assert that it would not have been obvious to one skilled in the art to combine the teachings of *Gardner* and *Arai*; as such, Applicants assert that the combination of *Gardner* and *Arai* fails to teach at least one element of Claim 1 of the present application.

Additionally, *Arai* also fails to teach that each of the first and second load platforms is dimensioned and configured to directly support the substrate. Instead, *Arai* teaches only a single load platform – the susceptor (12). Because neither *Gardner* nor *Arai* teaches both first and second load platforms that are dimensioned and configured to directly support the substrate, Applicants assert that *Arai* fails to cure the deficiencies of *Gardner*. Thus, it would not have been obvious to one skilled in the art to modify the apparatus taught in *Gardner* in view of *Arai* to include both first and second load platforms that are dimensioned and configured to directly support the substrate. Even if one skilled in the art would combine the teachings of *Arai* and

Gardner, the combined teachings fail to satisfy every element of Claim 1 of the present application.

Claims 6 and 7 are dependent claims that depend from independent Claim 1 of the present application and include all of the limitations thereof. Therefore, Applicants respectfully request the rejection of Claims 6 and 7 under 35 U.S.C. §103(a) as being unpatentable over *Gardner* in view of *Arai* to be withdrawn for at least the reasons provided above. Furthermore, Claims 6 and 7 each recite an additional unique combination of features not taught or suggested by the art of record.

Combination of *Huang* and *Arai*

Claim 1 of the present application recites a first and a second load platform. As explained above, *Huang* fails to teach these limitations. *Arai* likewise fails to teach these elements. Instead, *Arai* teaches a single load platform – the susceptor (12). Hence, *Huang* and *Arai* both teach only one load platform. Thus, it would not have been obvious in view of *Arai* to modify the teachings of *Huang* to add a second load platform to support a substrate. Even if one skilled in the art would combine the teachings of *Arai* and *Huang*, it would not be obvious to one skilled in the art to add a second load platform because neither prior art reference discloses a need for a second load platform for supporting a substrate. *Arai* fails to cure the deficiencies of *Huang*, and any combination of *Arai* with *Huang* likewise fails to teach a first and a second load platform, as recited in Claim 1 of the present application.

Accordingly, Applicants assert that it would not be obvious to one skilled in the art to combine the teachings of *Huang* and *Arai*, and further, such a combination of the teachings of *Huang* and *Arai* fails to satisfy each of the limitations of Claim 1 of the present application.

Claims 6 and 7 are dependent claims that depend from independent Claim 1 of the present application and include all of the limitations thereof. Therefore, Applicants respectfully request the rejection of Claims 6 and 7 under 35 U.S.C. §103(a) as being unpatentable over *Huang* in view of *Arai* to be withdrawn for at least the reasons provided above. Furthermore, Claims 6 and 7 each recite an additional unique combination of features not taught or suggested by the art of record.

35 U.S.C. §103(a) Rejection of Claim 4 over *Gardner* or *Huang*

Claim 4 was rejected under 35 U.S.C. §103(a) as being unpatentable over *Gardner* or *Huang*. Applicants respectfully traverse this rejection.

As explained above, (1) *Gardner* fails to teach at least a "reaction chamber," and (2) both *Gardner* and *Huang* fail to teach "each of the first and second load platforms is dimensioned and configured to directly support the substrate," as recited in Claim 1 of the present application. Thus, for the reasons explained above, Claim 1 is asserted to be allowable over *Gardner* and *Huang*. Claim 4 is a dependent claim that depends from independent Claim 1 of the present application and includes all of the limitations thereof. Moreover, Claim 4 recites an additional nonobvious combination of limitations not suggested by *Gardner* or *Huang*. In view of the allowability of Claim 1, Applicants have not included arguments against the Examiner's finding that "the determination of the optimal relative distance is a matter of obviousness and could be determined without undue experimentation." Office Action, p. 5. However, Applicants do not acquiesce with respect to the Examiner's finding. Therefore, Applicants respectfully request the rejection of Claim 4 under 35 U.S.C. §103(a) as being unpatentable over *Gardner* or *Huang* to be withdrawn for at least the reasons provided above.

No Disclaimers or Disavowals

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, the Applicants are not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. The Applicants reserve the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that the Applicants have made any disclaimers or disavowals of any subject matter supported by the present application.

SUMMARY

Applicants assert that pending Claims 1-11 are in condition for allowance. Applicants respectfully request the Examiner to grant allowance of the present application. The Examiner is invited to contact the undersigned attorney for the Applicants via telephone if such communication would expedite the allowance of this application.

While Applicants believe that no additional fees are due in connection with this application, Applicants respectfully request that Deposit Account No. 11-1410 be charged for any fees deemed owed during the pendency of this application, excluding the issue fee.

Respectfully submitted,

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Dated: 11/16/09

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